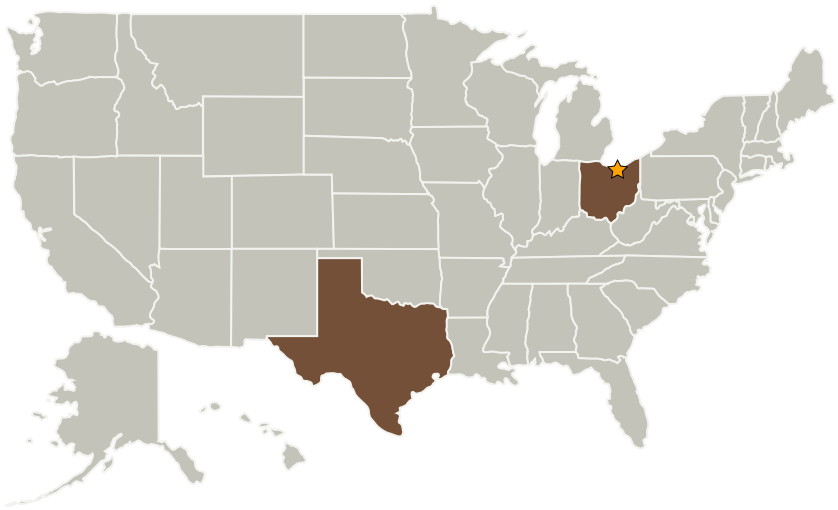
Integrated Data Assimilation Architecture, Phase I

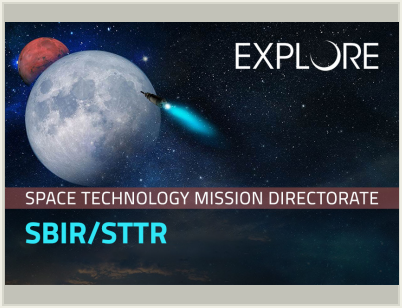
Completed Technology Project (2006 - 2007)

Project Introduction

The Integrated Data Assimilation Architecture (IDAA) is a middleware architecture that facilitates the incorporation of heterogeneous sensing and control devices into a unifying system with standardized application interfaces. The architecture is standards-based (IEEE wireless standards) and is an open architecture that can be easily extended. This system is innovative from several perspectives: (1) the design explicitly supports multiple disparate devices ? to date, wireless middlewares have focused on single device types or single network types; (2) independent development is explicitly supported by means of a published application programmer interface (API) along with system client libraries that provide standard services; and (3) a Development Kit ("DevKit") that includes working examples and source code templates is provided to assist developers in the integration of a new monitoring device and/or the composition of a new application that is a consumer of the data produced by the system. The proposed system will support the T3.01 Aerospace Communications topic by delivering a hybrid architecture that by design can incorporate multiple heterogeneous wireless devices and networks. Additionally, the IDAA system provides for multi-developer system extensibility, alleviating the problem of a monopolistic single-vendor implementation, where only the original developer of the middleware can efficiently extend the system functionality.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Invocon, Inc.	Supporting Organization	Industry Veteran-Owned Small Business (VOSB)	Conroe, Texas

Primary U.S. Work Locations	
Ohio	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.5 Mission Architecture, Systems Analysis and Concept Development
    - TX11.5.2 Tools and Methodologies for Performing Systems Analysis